DEPARTMENT OF TRANSPORTATION

QUESTIONNAIRE
REGARDING TRANSITIONING FROM THE CURRENT TITLE-21 PROTOCOL TO A NEW PROTOCOL

The California Department of Transportation (Caltrans) is currently considering the development of regulations regarding new technologies and new technical specifications to replace the current automated vehicle identification protocol currently set out in the California Code of Regulations (commonly referred to as the "Title-21 protocol"). Caltrans is very interested in hearing from stakeholders as to their views on the transitioning from Title-21 protocol to a new protocol, most likely the 6C protocol.

Caltrans will be holding two public workshops (July 8, 2015 in Oakland and July 22, 2015 in Fontana) to solicit initial comments on the transition from the current Title-21 protocol.

However, in anticipation and in connection with those workshops and other activities to facilitate public participation in the regulatory process, Caltrans invites you to complete the following questionnaire. This information will greatly assist Caltrans as it begins the process of considering new regulations.

Please provide your responses following each question. Please feel free to forward this questionnaire to any other interested parties.

Please e-mail your responses to: **Title.21.Changes@dot.ca.gov**.

Please list the name of the person completing the questionnaire and the name of the agency or company you represent.

NAME   Christopher Tomlinson, Executive Director

AGENCY   State Road and Tollway Authority (Georgia)

1.   Are there any alternatives to the transition to 6C, including comparable Federal regulations or regulations/protocols in other states? As Caltrans is aware, there is no RFID protocol that has been prescribed/regulated to be utilized as the standard protocol for tolling in the USA. The tolling industry's use of RFID protocols has evolved organically, with various regions' selection of protocols traditionally related to the predominant tolling systems vendors in those regions. The International Bridge, Tunnel and Turnpike Association (IBTTA) has undertaken an effort to identify a single RFID protocol to be utilized as a national standard to promote nationwide interoperability. This effort is currently still in progress and has identified three potential national

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protocols. ISO 18000-6C is one of these selected protocols, which shows Caltrans' consideration of 6C is consistent with the industry as a whole.

Georgia's State Road and Tollway Authority (SRTA) transitioned from the proprietary SeGo® protocol to the 6C protocol in 2011 after significant internal testing in both test and live tolling environments. SRTA made the decision to transition to 6C after investigating various RFID and DSRC options, concluding that 6C's combination of performance, available form factors and costs was the best solution for Georgia's tolling needs. After utilizing this protocol for four years, SRTA's absolutely convinced that 6C was and continues to be the best suited protocol for Georgia.

2.   What are the benefits of the transition to 6C? What are the drawbacks? SRTA conducted extensive testing with the 6C protocol and obtained excellent results regarding the accuracy of the RFID subsystem, even in the dual-protocol mode that was implemented to support SRTA's legacy transponders. The adoption of the 6C protocol greatly reduced SRTA's roadside RFID reader costs and also reduced transponder cost from $ 9.20/unit to the $2.06/unit cost we enjoy in 2015. This unit cost allows SRTA to provide transponders at no cost to SRTA account holders, which has enabled SRTA to transition to All Electronic Tolling with strong customer support for AET. The various form factors (windshield, bumper mount and headlight/motorcycle) have also allowed us to better accommodate our various customer segments and to better serve unique vehicle windshield designs.

SRTA has not experienced any significant drawbacks related to the adoption of 6C.

3.   Please discuss the factors involved, including projected timetables, for transitioning to a new protocol, with respect to the following:
a. Transponder procurements/existing inventories **SRTA conducted a procurement for roadside equipment (multi-protocol readers) that is able to support the legacy protocol as well as 6C. Existing inventories of legacy transponders were managed in order to coincide with the conversion to 6C. SRTA was able to transition to the 6C protocol in under 12 months, including procurement/installation of multi-protocol readers and 6C transponders.**
b. Toll-system modifications **System modifications were limited to multi-protocol readers at all SRTA roadside locations and minor back office modifications related to the transponder numbering and inventory process.**
c. Agency administrative changes **Changes were insignificant.**
d. Public education, outreach, and marketing **Minimal – as SRTA was already using sticker-type transponders for toll collection, the change to 6C amounted to a smaller 6C tag replacing the legacy transponders.**

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e. Issues regarding certification **The 6C Toll Operators Coalition (6CTOC) (founding members include WSDOT, SRTA, UDOT and E-470), initiated a certification program with OmniAir Certification Services and Federal Signal Technologies/3M, with the intent of requiring that any 6C device or equipment must be certified before 6C TOC members would procure that equipment. The certification process was conducted in parallel with the development of the 6C Tag Programming Standard.**

f. Issues regarding three-position transponders. **SRTA uses other means (mobile App and website) to allow customers to indicate vehicle occupancy, rather than switchable transponders.**

4.   **Please describe how the transition:**

a. Impacts business and/or employees **Transitioning to the 6C protocol greatly reduced our tag and reader costs.**

b. Impacts small businesses **Positive, because the tags were so inexpensive, SRTA provides them to its customers at no charge.**

c. Impacts jobs or occupations **We believe none but cannot quantify.**

d. Imposes reporting requirements **None**

e. Impacts individuals. **Positive, because the tags were so inexpensive, SRTA provides them to its customers at no charge.**

5.   Will the regulation affect the ability of California businesses to compete with other states by making it more costly to produce goods or services here? To the contrary, the cost savings that can be expected to be realized will benefit California tolling agencies and their customers.

6.   What are the costs that businesses and individuals may incur to comply with this regulation over its lifetime? Adoption of the 6C protocol can be expected to bring a lower cost of operations in regard to transponder costs as well as potentially align California with the national tolling interoperability efforts being conducted by the IBTTA.

7.   What are the fiscal impacts on state and local government? See above.

8.   Are there any issues regarding fairness of competition? 6C is currently supported and marketed by multiple vendors. As the 6C protocol is open, utilized in various other industries as the current de-facto RFIS standard protocol, and not constrained by proprietary licenses at present, the fairness and open competition currently in place with California's Title 21 RFID protocol is maintained or improved.

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9.   Are there any issues regarding individual privacy? No; only one unique transponder ID is used to process the toll transaction. No customer information is processed or communicated in the toll lane communications process, so privacy is not an issue regardless of the RFID protocol being utilized.

10.   Please provide comments on any other relevant issues not addressed above. SRTA is pleased with its transition to the 6C protocol. The inexpensive nature of this protocol is a major reason for the extensive tag penetration in our market. We have also had proposers such as 3M, Xerox, Raytheon, Sice, Kapsch, TransCore, Neology respond to our integration and equipment procurements, giving us comfort that this protocol can be supported by reputable companies.

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE